The Growing Importance of Veterinary Oncology

The Growing Importance of Veterinary Oncology: A Comparative Approach to Cancer Research

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Veterinary oncology is a rapidly evolving field crucial for the health of our beloved animal companions and a vital area for comparative medicine. As pets live longer, the incidence of cancer in these animals continues to rise, presenting significant challenges and opportunities for veterinary professionals and researchers alike.

This post delves into the compelling reasons why focusing on animal cancer is not only essential for animal welfare but also offers unparalleled insights into human cancer research, benefiting both species. This information is intended for veterinary practitioners, researchers, students, and pet owners interested in the scientific

advancements and societal impact of veterinary cancer care.

Why Worry About Cancer in Pets?

Why should veterinarians be concerned about cancer in pet animals?

Unfortunately, the prevalence of cancer in pet animals continues to rise. Prevalence refers to the number of diagnosed cancer cases per year, without considering the population at risk (which would be incidence). This increase is due to a variety of factors, but a major one is that animals are now living longer.

Cancer is primarily a disease of older animals. The increased lifespan of pets — thanks to better nutrition, vaccinations, advanced preventive care, therapeutic medical practices, leash laws, and a stronger human-animal bond — comes with a price: a higher risk of cancer.

As prevalence continues to increase, veterinarians are more frequently called upon to diagnose and manage cancer in pets.

Cancer as a Leading Cause of Pet Mortality

Cancer is one of the leading causes of death in pet animals.

A study analyzing over 2,000 necropsy cases found that 45% of dogs that lived to age 10 or older died from cancer. Overall, 23% of necropsy cases involved cancer, even without age adjustment.

With more than 74 million household dogs and 90 million cats in the United States (according to the AVMA), it's estimated that over 4 million dogs and 4 million cats may develop cancer annually.

A 1998 Mark Morris Foundation Animal Health Survey found that cancer was the leading cause of disease-related death in dogs (47%) and cats (32%). A follow-up survey in 2005 confirmed that cancer remained the top concern among pet owners (41%), far ahead of heart disease (7%).

Regardless of specific statistics, cancer is a major threat to pet health and a top concern for pet owners.

Public Awareness and the Human-Animal Bond

Breakthroughs in human cancer treatment have received extensive media coverage. Though progress has been slow, it has created an atmosphere of hope and optimism — which also influences how pet owners view cancer in animals.

As pet owners become more informed and hopeful, they also become more demanding when seeking care for pets with cancer. The veterinary field must be ready to meet these rising expectations.

The human-animal bond has grown stronger. Many pet owners now value their pets as much as, or even more than, human family members. This heightened bond underscores the importance of veterinary care.

Additionally, because many people have direct or indirect experiences with cancer in their own lives, they often expect veterinarians to offer both competent treatment and compassionate care. Veterinarians must approach each cancer case positively, knowledgeably, and empathetically.

The old "test and slaughter" approach is outdated and harmful. A compassionate, informed approach can support both pet and owner, reinforcing hope instead of fear.

Pets as Comparative Oncology Models

Pet animals with spontaneously developing cancers offer an excellent opportunity to study many aspects of cancer — from causes to treatments.

The National Cancer Institute has approved the Comparative Oncology Trials Consortium (COTC), comprising 14 veterinary schools that collaborate on clinical trials for dogs and cats with cancer. This initiative connects veterinary oncology to broader cancer research efforts involving the FDA, the Children's Oncology Group, and the pharmaceutical industry.

Humane and well-designed clinical studies can significantly advance knowledge and therapies for both pets and humans.

Key Benefits of Using Pets as Cancer Models:

- **Genetic Diversity**: Dogs and cats are genetically outbred like humans, unlike lab rodents bred for uniformity.
- **Spontaneous Disease**: Pets develop cancer naturally, not via artificial carcinogen exposure. Spontaneous tumors often behave differently than induced ones.
- **Shared Environment**: Pets live in the same environment as their owners, providing valuable epidemiological insight into environmental carcinogens.
- **Higher Incidence**: Some cancers (e.g., osteosarcoma, non-Hodgkin's lymphoma) are more common in pets, allowing for larger study samples.
- **Faster Progression**: Cancer in pets tends to progress faster, allowing quicker evaluation of outcomes like metastasis, recurrence, and survival.
- **Experimental Flexibility**: Since fewer "gold standard" treatments exist in veterinary oncology, novel therapies can be tried earlier in the treatment process. However, ethical considerations must always prevail.
- **Better Human Comparison**: Pet cancers resemble human cancers more than rodent tumors in size, cell behavior, and drug response.
- **Intact Immune Systems**: Unlike immune-compromised lab models, pets have functioning immune systems, allowing immunologic studies.
- **Cost-Effective Trials**: Animal trials are generally more affordable than human trials.
- **Study of Late Effects**: Pets live long enough to evaluate delayed effects of treatment.
- **Referral Centers**: Specialized veterinary centers help streamline case collection for trials.
- **Postmortem Insight**: Owners often consent to necropsies, aiding in assessing tumor control and treatment toxicity.
- **Realistic Imaging and Surgery**: The body size of dogs and cats allows for realistic surgical and imaging procedures similar to humans.
- **Genomic Advances**: The recent mapping of the canine genome opens up exciting possibilities for cross-species genetic research in oncology.

Future Directions in Veterinary Oncology

Pet owners who pursue cancer treatment for their animals are often compassionate, devoted individuals. Working with them is deeply rewarding for veterinarians.

These owners are usually satisfied with a sincere, well-informed effort to treat or manage their pet's disease, even if a cure isn't always possible. This makes the practice of oncology fulfilling — not only for the veterinarian and the owner but, most importantly,

for the pet.

Veterinary oncology is a complex and stimulating field. It presents both clinical and research-based challenges, and the opportunities for advancement are vast.

The field is expanding, with more training programs preparing veterinarians to enter private practice, academia, research, industry, and government.

By studying and treating pet cancer, veterinarians are not only improving animal health — they are also advancing the broader fight against cancer in humans.

> *"Cancer, unlike politics and religion, is not a topic of controversy. No one is for it. Cancer is not another word for death. Neither is it a single disease for which there is one cure. Instead, it takes many forms, and each form responds differently to treatment."*

Source Citation

Researcher: Stephen J. Withrow, David M. Vail
Thesis Title: *Withrow & MacEwen's Small Animal Clinical Oncology*
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